

at once by its very oval, compressed and translucent shell with very fine and sharp concentric groovings. So far I have not found it in the fossil state.

NOTES ON MOLLUSKS OF FLORIDA.

BY JOSEPH WILLCOX.

In THE NAUTILUS for November, 1894, the writer referred to the habits of many species of mollusks which he observed on the west coast of Florida. The present paper has been written in continuation of the same subject.

It is an interesting matter, for personal observation, to witness the persistent and relentless warfare of the molluscan forms upon others of the same family in their quest for food.

In the case of the oyster their enemies are not confined to members of the mollusca. In Florida waters they are preyed upon by numerous enemies which ply their predaceous vocation during the twelve months of the year.

Among the fishes the drum and the sheephead are the chief consumers of the oyster; the former devouring those of moderate size, while the latter confine their attention to the destruction of young oysters.

In the vicinity of the oyster beds nearly all the sheephead fish are found with ragged and freshly-cut lips caused by the sharp edges of the young oysters which they break loose from the clusters. So persistent are the sheephead, in the destruction of the young oysters, that single individuals of the latter are comparatively rare; and the survival of the species, in some localities, is, in a great measure, due to their protective habit of living in clusters.

Coextensive with the destruction of the oyster by the fishes, referred to above, their consumption appears to be as great by their molluscan enemy the *Melongena corona*.

Every oyster bed, on the west coast of Florida, from Cedar Keys to Cape Sable, is infested by these ostræophagi, which persistently prey upon the oysters as the chief article of their diet.

Their method of attack and subsequent destruction, from which there is no escape for the victim, is exceedingly ingenious, and is probably not unaccompanied by some measure of discomfort and even pain on the part of the aggressor.

The first effort in the assault, on the part of the *Melongena*, is the insertion of its beak or rostrum between the open valves of the oyster, when the latter is feeding. The valves, of course, are immediately closed upon the beak of the assailant, which is round and tough, resembling in form and color a leather shoe-string.

At this particular juncture the oyster appears to have the best position in the struggle for life; and if it could maintain its existence, without relaxing its muscles, the *Melongena* would, in time, starve to death while held in its grasp.

The position of affairs just described is probably continued for a long time, until the oyster, exhausted with the strain in the contraction of its muscles, is obliged to open its shells.

This is the opportunity which the *Melongena* has been patiently, or impatiently, awaiting; and its beak is immediately thrust further between the oyster shells.

It is only a question of time when the beak of the *Melongena* reaches the muscular portion of the oyster; and then the process of devouring it begins.

Early in the progress of this struggle for life other *Melongenas* assemble at the prospective feast, and insert their beaks between the shells of the oyster, and then await their opportunity for engorgement.

The writer has picked up an oyster in Little Sarasota Bay, in Florida, from which 14 *Melongenas* were dangling, suspended by their long beaks, which were held in the closed shells of their victim. A cluster of oysters was found, at the same place, between the shells of which were inserted the beaks of 22 *Melongenas*.

The *Sigaretus* is enabled to destroy the oyster by enveloping it in its folds, and in that manner smothering it. In the same manner the *Fulgur perversum* kills the oyster by enveloping it in its foot.

The *Melongenas* successfully attack and destroy large specimens of *Fulgur perversum*. They crowd on and around the operculum of the latter, and when it is opened for the admission of water for respiration, the beaks of the *Melongenas* are ruthlessly inserted between it and the shell; and the same method of attack is pursued as in the case of the oyster.

It is surprising to see how skillfully the *Melongenas* can arrange themselves, in order that the greatest number may occupy the space at their disposal at the feast.

The writer has seen a *Melongena corona* devouring a shrimp, and also a *Solen americanus*.

The only mollusk, seen to destroy the *Melongenæ*, was a *Fasciolaria gigantea* which enclosed it in its folds.

On one occasion a dead king-crab was found, lying on its back, on which many *Fasciolaria tulipa* were crowded and eating it.

An abundant food for the *Fasciolaria distans* is the *Vermetus*, (*Petalocochnus*) *nigricans*, into the tubes of which the former inserts its beak.

A WORD ABOUT SPHÆRIA.

BY EDWARD W. ROPER.

Among thousands of *Sphæria* examined during the past year several unique forms have been found. For example, a robust, rounded shell less than one-fourth inch long, with prominent beaks, from near Tallahassee, Florida. This is quite distinct from any species yet seen from the Gulf states. Again a very dark brown shell from southern Ohio, of the group of *S. occidentale*, but thicker and with more prominent beaks. From an unknown locality came a single specimen resembling a small *S. transversum* but with a less angular outline. Lastly from Minnesota and other neighboring states, may be mentioned a thin, orbicular, gray or light olive shell with calyculate beaks, often regarded as *S. truncatum*, but probably different from the New England shell described by Linsley. These forms have mostly come from single localities in very small numbers, and in view of the great variation among species in this genus, it would be unsafe to consider them new on such slight evidence. The writer would like correspondence with collectors having unique and doubtful *Sphæria* in their possession.

THE MUSSELS SCARS OF UNIOS.

BY CHAS. T. SIMPSON.

In some comments on my recent paper on the classification and distribution of the *Naiades* in THE NAUTILUS for June, 1896, I notice the statement that in having a series of muscle scars in the middle of the disk *Margaritana margaritifera*, *monodonta*, etc. differ